

## CLAIMS

1. A blood treatment system comprising an extracorporeal circuit for circulating blood from an individual through a filter to remove waste, the extracorporeal circuit including a blood line coupled to the filter and adapted to draw blood from the individual, a blood pump to convey blood through the blood line from the individual into the filter at a blood flow rate, a waste removal line to convey waste fluid from the filter, a sensor in the waste line to sense waste pressure, and a controller coupled to the sensor and the blood pump to adjust the blood flow rate to maintain waste pressure at a predetermined set value.
2. A system according to claim 1 wherein the controller generates an alarm output based upon variance between sensed waste pressure and the predetermined set value.
3. A method for carrying out blood treatment comprising the steps of conveying blood from the individual at a blood flow rate through a blood line into a filter to remove waste fluid, conveying waste fluid from the filter through a waste removal line, sensing waste pressure in the blood line, and adjusting the blood flow rate to maintain waste pressure at a predetermined set value.
4. A method according to claim 3 further including the step of generating an alarm output based upon variance between sensed blood pressure and the predetermined set value.

5. A method as in claim 3, wherein said predetermined value is positive.

6. A blood treatment system, comprising:

a filter;

an arterial blood line connectable to a patient access and adapted to convey blood from said patient access to a filter having a blood side and a waste fluid side on opposite sides of membrane of said filter;

a venous blood line connectable to said patient access and adapted to convey blood from said filter to patient access; and

a pump configured to convey blood through said arterial blood line, a sensor configured to sense pressure in said waste fluid side of said filter, and a controller connected to receive a pressure signal from said sensor and to control a rate of flow of said pump;

said controller being configured to maintain a constant pressure in said arterial blood line by regulating a speed of said pump in response to said pressure signal.

7. A system as in claim 6, wherein said controller is a microcomputer programmed to compare said pressure signal with a predetermined value.

8. A system as in claim 7, wherein said predetermined value corresponds to a positive pressure.